



Transformation That Drives Central Event Management (CEM) Success

How to optimize people, processes and technology (PPT), and gain maximum value from TaKaDu

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Introduction

Adoption of TaKaDu's Central Event Management (CEM) solution is a continuous process that finely balances between **people, processes, and technology (PPT)**. This article describes the transformation that water utilities typically go through and outlines how best to handle the changes.

In any operational setting, introducing a new enterprise solution almost always requires adjustments in work processes and team member roles. The more significant the technology advance, the more transformation is needed.

For water utilities that are considering implementing CEM, it's important to know upfront not just what kinds of changes are needed, but also how best to manage those changes in order to accelerate and maximize the value from the technology and its deployment. We believe that having a plan will optimize the implementation of CEM and fast-track the ROI.



Plan ahead

Typically, water utilities see CEM as a technology leap, and rightly so. Improvements introduced by TaKaDu include: the use of smart data analytics to monitor the network 24x7 and detect small leaks in near-real time; visibility into the network data; inter-departmental collaboration when managing the repair of malfunctioning assets; a central dashboard that brings together information from multiple solutions for managing a network incident; and more.

Even with the use of such significant technology, the human factor continues to be critical to the operations of both the CEM solution and the network. CEM doesn't replace people; rather it improves their decision-making processes through provisioning of objective, accurate, and consistent information whenever required. So, even before deployment of the CEM solution starts, it's important to consider how people, processes and technology interact, and to carefully plan the needed transformation.



New technology, new way of working

Experience shows that water utilities will struggle to benefit from deploying new technologies if they retain the former ways of working that were based on the capabilities (and limitations) of the predecessor solutions. In other words, a new technology is only as good as the people and processes that use it.

For example, if prior to deploying TaKaDu's CEM, the utility surveyed areas for leaks periodically (hence many leaks were detected only months after they started), the field team is likely to continue working with that schedule in mind.

That means the team most likely will not proactively survey a specific area based on a leak incident detected by TaKaDu if it conflicts with the predefined survey order.

As a result, the utility would miss out on an opportunity to handle a leak relatively soon after it developed. By recognizing this in advance, and preparing the team and processes for transformation, the utility can gain higher value from the technology and drastically shorten the leak repair cycle.

**Below are our key recommendations
for a successful PPT transformation plan.**

Assign a transformation leader

We recommend nominating **an executive manager** to lead the transformation as a top-down initiative. The manager can direct the needed resources to investigate which processes should be prioritized for change and oversee the plan for ensuring staff responsibilities and tasks are adjusted appropriately. Utilities that adopt this approach typically complete the transformation faster and smoother, and they begin gaining meaningful value sooner.



Train users in stages

In our experience, dividing user training into three stages is the most-effective approach.

- A** Just after the go-live, conduct a short, remote training session with the TaKaDu team, covering basic features of the TaKaDu system. Following this session, users can start using the system and gain some experience around the basic offering.
- B** 2-4 weeks into using the system, hold an in-depth training about all the processes and functionality that users need to know in order to manage all types of events. This training session lasts 2 days and can be done remotely or onsite.
- C** Plan for ongoing ad-hoc training sessions. Allocate time for short remote training sessions that are arranged as needed depending on adoption level, users' requests, and introduction of new features.



Expect value to build gradually – set expectations

Some utilities expect to be able to detect the full range of events right after deployment of the TaKaDu CEM solution. While sometimes this does happen, in most deployments, the initial experience is more about gaining data visibility and quality; the value in terms of event detection grows gradually.

A One truth across the board

Right after going live, the TaKaDu system provides visibility and transparency related to the data from the different meters and network areas. Almost immediately, it becomes apparent which meters work properly, whether each DMA is indeed a closed supply zone, and if everything in the system is configured well. At this stage, it is not uncommon for utilities to discover that their assets are functioning at a different level than they had expected.

B Detection of basic events

In addition to transparency, the system starts generating basic events about meters that are not working well and about data transmission problems.

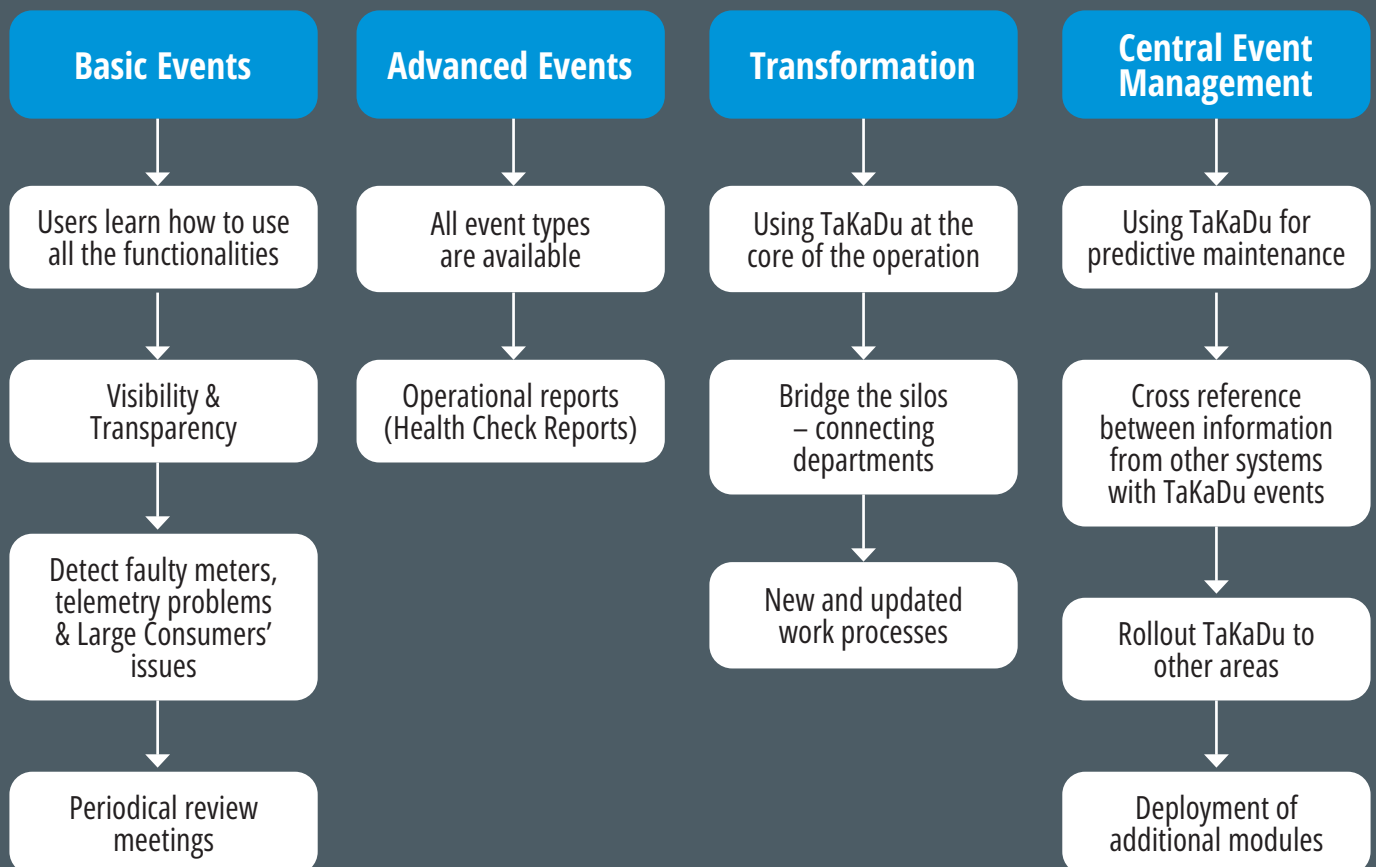
C Detection of sophisticated events

Once there is enough accurate data (which depends on the functional performance of the meters and the configuration accuracy), the system will begin detecting sophisticated events such as leaks, pressure, and water quality. If the meters work fine and are configured well, the system may start detecting these events as early as immediately after going live. Sometimes, however, it takes the utility a few weeks or even a few months to repair or replace malfunctioning meters, fix data telemetry, and update the configuration. In such cases, detection of those types of sophisticated events will be delayed until the meter and configuration issues have been resolved.



Before deployment begins, it is important to set expectations appropriately, to prepare users and managers for the gradual process of gaining value and prime the operation team for a quick cycle of asset maintenance just after the go-live. Doing so enables teams to take the proper remedial actions quickly, rather than be surprised or frustrated.

A pilot year with TaKaDu



Change of processes and culture in 12 months

Continuously measure adoption level

Making the changes is important, but it's not enough. By measuring the effectiveness of the changes over time, managers can assess the success level and, just as importantly, learn about areas of the business that require more attention. We help utilities do this by:

- A** Providing a monthly Health Check report that measures three key performance indicators (KPIs):
 - (a). **Reduction of water loss** – Based on events the system detects and that the utility repairs and closes.
 - (b). **Usability** – How frequently users access the system, the backlog of events, duration till closing events, and more.
 - (c). **Data quantity and quality** – Checking if the meters send the right amount of data to the TaKaDu system (at the required frequency) and if the data is good enough (has the required granularity, is correct and complete).
- B** Holding regular (typically biweekly or monthly) calls with our Customer Success Team. This way utilities can discuss any ongoing issues related to using the system and get expert input about how to get more value from the system.

With inputs from the monthly reports and ongoing calls, utilities can clearly see how by considering people, processes and technology (PPT) they have transformed their operation. Likewise, they can see what challenges they still need to address.



Position CEM users at the core of the network operation

When planning the number of users and which departments they will come from, we recommend considering the following:

A Since TaKaDu's CEM is a decision support tool for all network events and incidents, the system should be placed in the heart of the network operation by assigning selected control room personnel as users.

B After initial analysis of the events, users delegate the rest of the work to other people in the back office or in the field. Therefore, it is important to give users the authority to decide, prioritize, and delegate to selected employees in other teams, such as engineering, maintenance, infrastructure, field operations, and asset management.

C On average, one user of TaKaDu can monitor about 2,500 km (1553 mi) of network and requires about 1.5 hours a day to review and update events. In larger networks, utilities typically organize the TaKaDu users in tiers. Tier-1 users begin handling all the events, spending little time on each event, usually around 15 minutes. As needed, tier-1 users escalate events to tier-2 users who can look deeper into event details and recommend actions. For example, a tier-1 user escalates a leak event to a tier-2 user in the leak detection department. The tier-2 user then further investigates the event and decides how to proceed. We recommend assigning approximately five tier-1 users for every tier-2 user (i.e., a ratio of 5:1).

D If the control room works in shifts or monitors a large area, we recommend considering multiplying the number of users accordingly.



Update working processes

New technology introduces new capabilities that in turn open opportunities for value – such as cost savings, time savings, service quality improvements, and more. To maximize the value from the technology, utilities should review their working processes in light of the new technology, and modify them as needed, define new processes, and cancel obsolete processes.

Because CEM is a decision support solution, and it is people who actually make the decisions, it is critical to update the working processes. Following are a few recommendations on processes that should be modified, new processes that should be added, and obsolete processes that should be canceled.

Old process

Review the nightline of all areas (DMAs), looking for areas with significant nightline growth and that are suspected to be leaking. This is a labor-intensive process that takes several hours if done thoroughly, and significant time can go by before nightline growth is detected. If the leak is small, nightline growth may be seen only months after the leak starts.



New process

TaKaDu reviews the network 24X7 and generates events automatically whenever it detects anomalies. The system orders and prioritizes the list of events automatically. Analysts in the control room review the list and receive notifications upon creation of certain events so that they can start reviewing them in near-real-time as each new event begins.

Wait for residential and commercial consumers to call about bursts before dispatching a team to fix the problem. In addition, conduct proactive surveys in which the areas are visited according to a preset schedule, usually once every year or so.



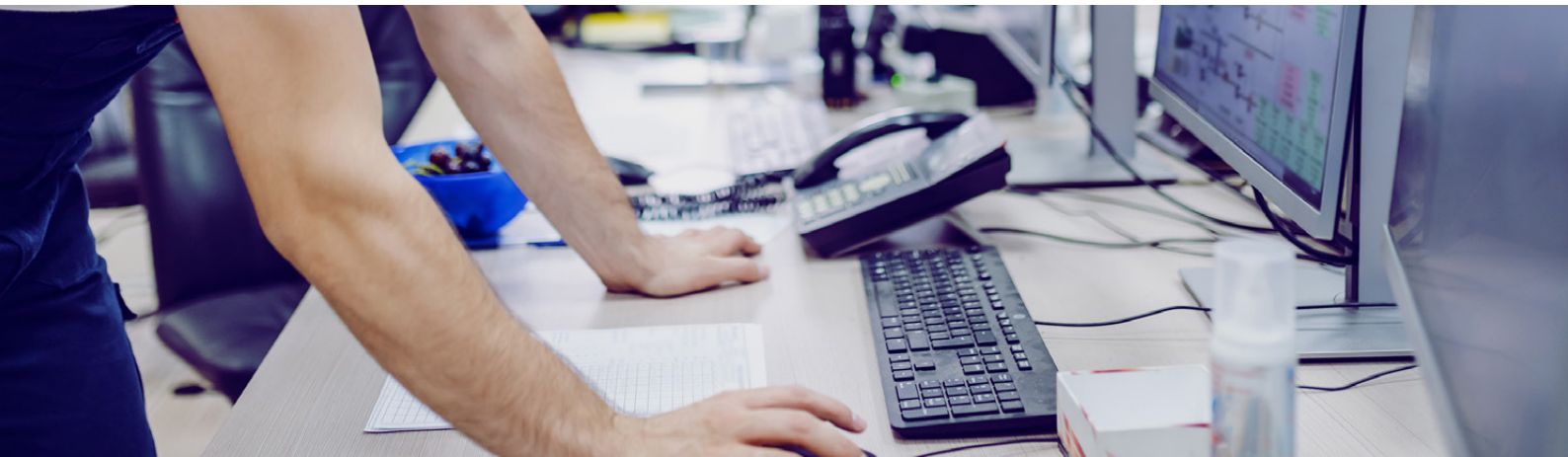
Based on the automatic detection of events, decide which areas to survey in a proactive way. As a result, location and repair of most leaks happens relatively early in their evolution, before they turn into a burst.

Increase inter-departmental communication and collaboration ('bridge the silos')

In water utilities, collaboration between employees of different departments is often challenging to achieve. Different managers set different objectives for their employees, and there are often technological limitations, with different departments using different systems (that are not fully integrated). As a result, teams often work in silos. Introducing a new solution like TaKaDu's CEM presents an opportunity to bridge some of the silos as it introduces new capabilities for collaboration.

Experience shows that managing the full lifecycle of network events is a process that takes a few hours to several weeks and involves the cooperation of multiple employees from different teams. Because collaboration is vital, the TaKaDu system offers specific options for sharing events with other employees, assigning responsible employees to events and switching responsibility as needed, sending notifications, attaching documents, and more.

When thinking about the new roles and responsibilities of employees, we encourage utilities to consider bridging some of the silos and empowering employees to communicate more with others when managing events. This can simplify working processes and reduce the time needed to complete each activity, eventually improving operational efficiency and effectiveness.

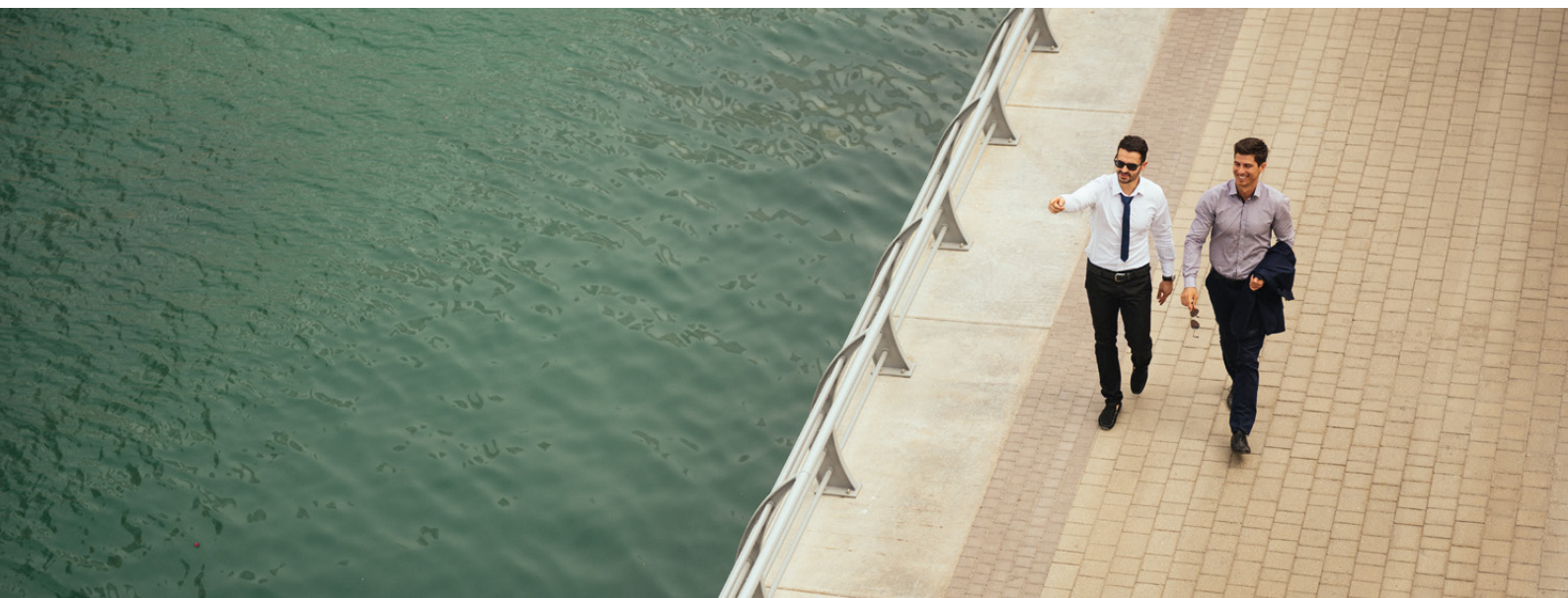


Plan to leverage CEM as a central dashboard for information from other solutions

Although TaKaDu's CEM is the main vehicle for detecting all kinds of asset failure events, information from other systems should be used together with TaKaDu at various stages in the event management processes. For example, when reviewing a new leak event, users check if there are teams in the field performing an activity that might explain the new leak. Prior to introducing TaKaDu, users typically toggle between multiple systems and use the relevant information from each system.

To eliminate the need for such inconvenient and inefficient toggling between systems, TaKaDu supports the integration of other relevant information from other sources, such as work orders, customer calls to the call center, and (fixed) acoustic sensor solutions. This enables users to see all the relevant information in one dashboard, together with the TaKaDu-detected events.

That said, we recommend waiting 6-12 months after deploying TaKaDu before integrating information from other solutions.



Start small, and plan to grow

Prior to beginning full deployment of the TaKaDu solution in large networks, we recommend planning a well-defined pilot, to be followed by a phased rollout and expansion. We suggest taking the following into account:

A The system detects events at the level of the DMAs and when applicable points to specific malfunctioning assets. We recommend limiting the pilot to 2,500 km (1553 mi) of water network pipes divided into 50-80 DMAs. The higher the number of DMAs, the higher the probability of success, and that meaningful events will be detected during the pilot.

B Rollout of the solution to monitor additional areas of the network takes a few weeks of joint efforts by the utility and TaKaDu. We recommend considering scheduling additional rollouts towards the end of the pilot year or later.

C To ensure a successful pilot that produces meaningful value, we recommend deploying the following list of modules: Events, Graphs, and Areas. Around 6-9 months into the pilot is a good time to consider a gradual deployment of additional modules such as Reports, Integration with other systems, and Predictive Maintenance. Once the TaKaDu system has been in use for some time, and users are more familiar with it, integrating other information is relatively easy.



Summary

Deployment of a new enterprise solution like TaKaDu's CEM platform is an opportunity to gain significant new benefits across the PPT paradigm. To gain the most value, utilities should consider the human factor and consequently change some roles and responsibilities, adjust or establish new working processes, and facilitate connection between departments.

Because people by nature are change-averse, utilities cannot assume changes will happen by themselves. It is vital that the changes are managed before, during, and after the deployment. In particular, the first year is key. The resources and efforts invested in transformation will pay off during that period, and even more so going forward.

We have seen that those utilities that nominate an executive manager to lead the transformation as a top-down project are more successful in achieving the required transformation. They experience meaningful tangible and intangible value from the solution relatively early on (1-3 months from the beginning of usage), and this motivates them to complete the transformation, typically within 9-18 months of the initial deployment. The result: accelerated time to value, and maximum value over time.

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